Vol. 62 No. 9 September 1987

JOURNAL OF Medical Education

PUBLICATION OF THE ASSOCIATION OF AMERICAN MEDICAL COLLEGES

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An AAMC Pilot Study by 10 Medical Schools Of Clinical Evaluation of Students

Xenia Tonesk, Ph.D., and Robin G. Buchanan

Abstract—In 1979 the Association of American Medical Colleges (AAMC) began a Clinical Evaluation Program. In the first phase of the program, AAMC staff members interviewed more than 500 persons in approximately 40 medical schools and solicited responses from clerkship coordinators in six specialties on the problems encountered in evaluating students' clinical performance. These results were published in 1983. The second phase of the program, which is reported on in the present paper, consisted of developing a set of self-assessment instruments in clinical evaluation and testing these instruments by 10 pilot schools. Clinical faculty members and clerkship coordinators in the pilot schools and residents at affiliated hospitals who worked with the students were asked to identify the problems they faced in evaluating students' clinical performance, and these responses were analyzed in terms of the respondents' specialties. The problems identified by the highest percentages of clinical faculty members and residents were: inadequate guidelines for handling problem students, failure to act on negative evaluations, lack of information about problems that students bring with them into clerkships, and faculty members' unwillingness to record negative evaluations. A rank-ordering of these responses on problems showed that different specialties considered different problems to be severe. In rating difficulties in evaluating problem students, the respondents reported that the type of problem student most frequently encountered was one who cannot focus on what is important. Rank-ordering of these responses showed that each type of problem student poses different evaluation difficulties in each specialty. The respondents also identified the problems they had with the evaluation forms used in their departments.

This article was prepared as a companion piece to a paper, "AAMC Program To Promote Improved Evaluation of Students During Clinical Education" (1), that was presented at the National Invitational Conference on the Clinical Education of Medical Students held in 1985 by the Association of American Medical Colleges (AAMC). That paper provided an overview of the AAMC Clinical Evaluation Program and its conclusions within the framework of a systems approach to evaluation. The present article furnishes the reference data that should aid individual schools in adopting the

Dr. Tonesk, former director of the Clinical Evaluation Program of the Association of American Medical Colleges (AAMC), is director, Graduate Medical Education Project, Stanford University Hospital, Stanford, California; and Ms. Buchanan, former coordinator of the AAMC program, is on the research staff, Department of Internal Medicine, Virginia Commonwealth University.

systems approach and in reviewing their evaluation policies and practices using self-assessment instruments available from the AAMC. This paper should serve as a reference work for curriculum and promotion committees, deans for academic and student affairs, clerkship directors, and educational researchers.

Background

The Clinical Evaluation Program, begun in 1979 by the AAMC, was a response to a growing concern on the part of clinical faculty members with their role as evaluators of medical students. During the first phase of the project, this concern was defined, validated, and documented through two approaches. First, interviews were conducted by AAMC staff members with more than 500 persons in approximately 40 medical schools. Second, a letter of inquiry regarding obstacles to effective and efficient evaluation of clerks was distributed to 640 clerkship coordinators in six specialties. Responses from a total of 519 clerkship coordinators and clinical faculty members were received to this inquiry. The results of the interviews and of the survey were summarized in 1983 in two publications (2, 3).

In the second phase of the project, AAMC staff members worked with a 13-member Program Advisory Group, chaired by Daniel D. Federman, M.D., Harvard Medical School, to develop a set of self-assessment instruments. These instruments were designed to enable medical schools and clinical departments to: (*a*) describe the formal and informal structure of their evaluation systems, (*b*) assess the strengths and weaknesses of those systems, (*c*) determine the level of satisfaction with the systems by those involved in their implementation, and (*d*) decide on needed changes.

Ten medical schools were selected to participate in the pilot study of these materials in three cycles of review and revision. These schools and the corresponding number of respondents at each were: University of California, Los Angeles, UCLA School of Medicine (70); University of California, San Francisco, School of Medicine (79); University of Cincinnati College of Medicine (69); Jefferson Medical College of Thomas Jefferson University (25); Louisiana State University School of Medicine in New Orleans (50); McMaster University School of Medicine (110); University of Oklahoma College of Medicine (121); University of Pennsylvania School of Medicine (68); Uniformed Services University of the Health Sciences F. Edward Hébert School of Medicine (30); and University of Washington School of Medicine (470). The total number of respondents was 1,092. Participation by specialty consisted of 358 in internal medicine, 204 in pediatrics, 108 in surgery, 110 in psychiatry, 200 in obstetrics-gynecology, 40 in family medicine, and 29 in other specialties.

Project coordinators at each school selected the self-assessment materials that they were interested in testing and developed a schedule mutually agreeable to the school and to the AAMC. Thus, not all schools tested all instruments. The final set of self-assessment materials tested were: (*a*) "Description of Structure and Function for the Dean's Office and for Clinical Departments"; (*b*) "System Problem Checklist for the Dean's Office, for Clerkship Coordinators, and for Clinical Faculty"; (*c*) "Problem Student Checklist for the Dean's Office, for Clerkship Coordinators, and for Clinical Faculty"; and (*d*) "Evaluation Content Checklist for Clerkship Coordinators and for Clinical Faculty."

The data presented in the present report were derived from the studies con-

ducted by the 10 pilot schools from 1984 to 1986. The publication of this report and two others addressing the systems approach to evaluation concludes the second phase of the AAMC program (4, 1). All of the self-assessment materials reported on here have been integrated into the AAMC Management Education Program Workshop Series entitled "Systems for the Evaluation of Clinical Students: An Institutional Management Approach." During 1986, 26 medical schools participated in the workshops.

Systems Approach to Evaluation

The underlying tenet of the systems approach is that evaluation is not merely, or even primarily, a psychometric task but rather is a task that involves several interacting elements—evaluators, students, content, methods, and environment. Whereas methods of evaluation have long been subjects of intense interest and investigation, it is the other components, often overlooked, that are the key to an efficient and effective evaluation system.

Evaluators should be integrated into the system based upon their level of interest in and experience with the task and upon the type of opportunity they have to assess students. Clinical faculty members should be aware of the types of problem students that they will encounter and

TABLE 1

Numbers and Percentages of 872 Clinical Faculty Members and Residents at 10 Pilot Schools Who Rated the Seriousness of 14 Common Problems in Their Clinical Evaluation of Students, 1984–85

Problem	No. of Respondents*	Serious Problem		Problem		No Problem	
		No.	Percent	No.	Percent	No.	Percent
Inadequate guidelines for handling problem students	860	316	36.7	343	39.9	201	23.4
Lack of information about problems students bring with them into the rotation	863	300	34.8	349	40.4	214	24.8
Faculty members' unwillingness to record negative evaluations	860	297	34.5	344	40.0	219	25.5
Failure to act on negative evaluations	828	303	36.6	255	30.8	270	32.6
Lack of training of evaluators	867	224	25.8	377	43.5	266	30.7
Reversal or dilution of negative evaluations	841	211	25.1	295	35.1	335	39.8
Criteria of evaluation insufficiently defined	867	196	22.6	304	35.1	367	42.3
Delays in feedback to students	849	186	21.9	306	36.0	357	42.0
Role as evaluator not clearly defined	868	133	15.3	329	37.9	406	46.8
Insufficient communication with clerkship or site coordinator	863	132	15.3	292	33.8	439	50.9
Tardy submission of required evaluations	853	122	14.3	303	35.5	428	50.2
Insufficient opportunity to observe students directly	870	158	18.2	235	27.0	477	54.8
Excessive reliance on residents for information about students	838	120	14.3	260	31.0	458	54.7
Inadequate evaluation form	866	112	12.9	202	23.3	552	63.7

* A total of 872 persons completed the questionnaire; however, the number of respondents per item varied.

the level of difficulty they will have in diagnosing and managing these students. With this information, the faculty members can identify and acquire resources necessary for remediation.

The methodology employed in assessment should be appropriate for the content of what is being evaluated. The fund of knowledge and the technical aspects of clinical skills can be assessed by objective measures. In contrast, personal and professional qualities and more complex cognitive and clinical skills demand observation over extended periods and inevitably involve educated guesses and personal judgment of the evaluator.

A poorly functioning evaluation system can be the result of policy problems (for example, a clerkship in which all students receive honors regardless of performance

TABLE 2

Numbers and Percentages of 96 Clerkship Coordinators at Seven Pilot Schools Who Rated the Seriousness of 22 Common Problems in the Clinical Evaluation of Students, 1984–85

Problem	No. of Respondents*	Serious Problem		Problem		No Problem	
		No.	Percent	No.	Percent	No.	Percent
Faculty members' unwillingness to record negative evaluations	94	38	40.4	36	38.3	20	21.3
Lack of early-warning system regarding problem students	94	41	43.6	30	31.9	23	24.5
Breakdown in transmission of information across rotations and clerkships	85	37	43.5	23	27.1	25	29.4
Lack of training of evaluators	94	33	35.1	40	42.6	21	22.3
Tardy submission of required evaluations	92	25	27.2	43	46.7	24	26.1
Criteria of evaluation insufficiently defined	96	28	29.2	37	38.5	31	32.3
Inadequate guidelines regarding repeaters	90	29	32.2	27	30.0	34	37.8
Reversal or dilution of negative evaluations	90	23	25.6	35	38.9	32	35.6
No follow-up of effectiveness of remediation	86	20	23.3	31	36.0	35	40.7
Lack of agreement among evaluators	89	15	16.9	42	47.2	32	36.0
Failure to act on negative evaluations	91	24	26.4	24	26.4	43	47.3
Lack of integration of information about the student from various sources	96	12	12.5	46	47.9	38	39.6
Delays in feedback to students	92	13	14.1	39	42.4	40	43.5
Lack of integration of information about the student over time	93	14	15.1	37	39.8	42	45.2
Inadequate guidelines regarding temporary or conditional grades	93	16	17.2	32	34.4	45	48.4
Lack of correspondence between grades and narrative evaluation	91	15	16.5	32	35.2	44	48.4
Inadequate evaluation form	94	12	12.8	28	29.8	54	57.4
Inappropriateness of remedy applied to problems identified in students	83	12	14.5	20	24.1	51	61.4
Underutilization of existing counseling system	85	8	9.4	26	30.6	51	60.0
Excessive reliance on residents for information about students	80	9	11.3	20	25.0	51	63.8
Paucity of counseling options	91	8	8.8	25	27.5	58	63.7
Insufficient support from administration for the evaluative process	94	9	9.6	20	21.3	65	69.1

* A total of 96 persons completed the questionnaire; however, the number of respondents per item varied.

TABLE 3

Rank Order of Severity of 14 Common Problems in Clinical Evaluation of Students, Based on the Ratings of Seriousness of Each Problem by 872 Clinical Faculty Members and Residents at 10 Pilot Schools, by Specialty, 1984–85*

Problem	All (n = 872)	Internal Medicine (n = 301)	Surgery (n = 91)	Pediatrics (n = 184)	Psychiatry (n = 95)	Obstetrics-Gynecology (n = 160)
Inadequate guidelines for handling problem students	1	2	2	1	1	2
Lack of information about problems students bring with them into the rotation	2	4	3	4	2	1
Faculty members' unwillingness to record negative evaluations	3	1	5	3	3	8
Failure to act on negative evaluations	4	3	1	2	5	5
Lack of training of evaluators	5	6	7	5	4	3
Reversal or dilution of negative evaluations	6	5	6	6	7	12
Criteria of evaluation insufficiently defined	7	9	8	7	6	4
Delays in feedback to students	8	7	4	8	9	6
Role as evaluator not clearly defined	9	11	11	10	8	10
Insufficient communication with clerkship or site coordinator	10	8	13	11	11	11
Tardy submission of required evaluations	11	12	10	12	10	7
Insufficient opportunity to observe students directly	12	13	9	9	13	9
Overreliance on residents for information about students	13	10	12	13	14	13
Inadequate evaluation form	14	14	14	14	12	14

* In the rank order, 1 = most severe and 14 = least severe problem. The rank order was based on the respondents' rating of each problem on a 3-point scale.

or an institutional commitment to minority admissions with no subsequent support for minority students who enter), structure problems (lack of adequate support staff for the evaluation process; inadequate monitoring of remote educational sites), personnel problems (known bias of evaluators; poor ability of evaluators to reconcile their roles as mentors and judges), or information flow problems (lack of clear guidelines regarding next steps to be taken after identification of a problem student; valuable evaluative information received too late to be integrated into a composite evaluation of the student).

The changing environment in which clinical education takes place should be monitored, and teaching and evaluation policies and practices should be modified as necessary to accommodate the changes. Also, research in evaluation should be examined to find practical applications that can be integrated into an evaluation system.

Analysis of Clinical Evaluation

The clinical faculty members and clerkship coordinators from the 10 pilot schools and residents at affiliated hospitals who worked with the students were asked to identify the problems they faced

TABLE 4

Rank Order of Severity of 22 Common Problems in Clinical Evaluation of Students, Based on the Ratings of Seriousness of Each Problem by 96 Clerkship Coordinators at Seven Pilot Schools, by Specialty, 1984–85*

Problem	All ($n = 96$)	Internal Medicine ($n = 27$)	Surgery ($n = 9$)	Pediatrics ($n = 12$)	Psychiatry ($n = 9$)	Obstetrics-Gynecology ($n = 14$)
Faculty members' unwillingness to record negative evaluations	1	1	3	3	3	13
Lack of early-warning system regarding problem students	2	2	1	9	8	1
Breakdown in transmission of information across rotations and clerkships	3	5	5	5	5	7
Lack of training of evaluators	4	6	15	2	2	2
Tardy submission of required evaluations	5	3	8	7	4	8
Criteria of evaluation insufficiently defined	6	15	6	1	1	5
Inadequate guidelines regarding repeaters	7	8	2	4	10	14
Reversal or dilution of negative evaluations	8	4	5	15	6	16
No follow-up of effectiveness of remediation	9	9	9	10	12	10
Lack of agreement among evaluators	10	11	17	6	13	3
Failure to act on negative evaluations	11	7	13	17	15	19
Lack of integration of information about the student from various sources	12	14	11	8	16	6
Delays in feedback to students	13	13	22	16	17	4
Lack of integration of information about the student over time	14	12	16	11	9	9
Inadequate guidelines regarding temporary or conditional grades	15	16	14	14	11	21
Lack of correspondence between grades and narrative evaluation	16	10	7	12	20	15
Inadequate evaluation form	17	18	4	13	18	17
Inappropriateness of remedy applied to problems identified in students	18	17	10	21	21	12
Underutilization of existing counseling system	19	20	19	19	7	22
Excessive reliance on residents for information about students	20	22	21	18	22	11
Paucity of counseling options	21	19	20	20	14	20
Insufficient support from administration for the evaluation process	22	21	18	22	19	18

* In the rank order, 1 = most severe and 14 = least severe problem. The rank order was based on the respondents' rating of each problem on a 3-point scale.

in evaluating students' clinical performance, and these responses were analyzed in terms of the respondents' specialties. The respondents were asked the frequency with which they encountered different types of problem students and the amount of difficulty they had in identifying and managing these students. They were also asked to assess the adequacy of the evaluation forms they used.

EVALUATION PROBLEMS

A total of 872 clinical faculty members and residents at the schools were individually presented with a list of 14 common clinical evaluation system problems and asked, based on their experience, to consider whether each item was a serious problem, a problem, or no problem in the evaluation of medical students' clinical performance. The responses are displayed in Table 1. The problems that 25 percent or more of the respondents endorsed as serious were: inadequate guidelines for handling problem students, failure to act on negative evaluations, lack of information about problems that students bring with them into the rotation, faculty members' unwillingness to record negative evaluations, lack of training of evaluators, and reversal or dilution of negative evaluations.

A total of 96 clerkship coordinators at seven of the 10 schools were given the

TABLE 5

Numbers and Percentages of 891 Clerkship Coordinators, Clinical Faculty Members, and Residents at Eight Pilot Schools Who Rated the Frequency with Which They Encountered 21 Types of Problem Students, 1984–85

Type of Problem Student	No. of Respondents*	Frequently		Occasionally		Rarely	
		No.	Percent	No.	Percent	No.	Percent
Cannot focus on what is important	885	197	22.3	559	63.2	129	14.6
Has a poor fund of knowledge	882	142	16.1	587	66.6	153	17.3
Disorganized	887	161	18.2	550	62.0	176	19.8
Has poor integration skills	885	137	15.5	547	61.8	201	22.7
Excessively shy, nonassertive	888	125	14.1	554	62.4	209	23.5
Overeager	884	146	16.5	493	55.8	245	27.7
Bright but has poor interpersonal skills	887	57	6.4	538	60.7	292	32.9
Uninterested	886	47	5.3	415	46.8	424	47.9
Too casual and informal	890	43	4.8	413	46.4	434	48.8
Avoids work	887	23	2.6	402	45.3	462	52.1
Challenges everything	889	21	2.4	380	42.7	488	54.9
"Does not measure up" intellectually	884	20	2.3	367	41.5	497	56.2
"All thumbs"	869	14	1.6	293	33.7	562	64.7
Avoids patient contact	881	11	1.2	258	29.3	612	69.5
"Con artist"	875	10	1.1	215	24.6	650	74.3
Rude	847	20	2.4	166	19.6	661	78.0
Hostile	884	3	0.3	167	18.9	714	80.8
Cannot be trusted	867	11	1.3	143	16.5	713	82.2
Does not show up	876	4	0.5	147	16.8	725	82.8
Has a psychiatric problem	881	4	0.5	128	14.5	749	85.0
Has a substance-abuse problem	855	2	0.2	36	4.2	817	95.6

* A total of 891 persons completed the questionnaire; however, the number of respondents per item varied.

same task for a list of 22 common clinical evaluation system problems. The list included the 14 items presented to clinical faculty members and eight additional items that addressed the clerkship coordinators' role as managers of the clerkship experience. These responses appear in Table 2. The problems that 30 percent or more of the coordinators considered serious were: lack of early-warning system regarding problem students, breakdown in transmission of information across rotations and clerkships, faculty members' unwillingness to record negative evaluations, lack of training of evaluators, and inadequate guidelines regarding repeaters (that is, clerks who failed a rotation previously).

The 10 problems identified by the faculty members, residents, and clerkship coordinators fall into three categories: (*a*) communication among faculty members, (*b*) faculty attitudes and perceptions, and (*c*) technical aspects of the evaluation system (4). The systems approach is valuable in highlighting tasks necessary to address the problems within the categories. Improving the flow of information within and among all components of the system is one such task. Improved communication also helps to dispel misperceptions and to modify attitudes of faculty members. Making available guidelines, training programs, and evaluation instruments addresses the technical requirements of the system and enhances communication.

Specialty-specific responses regarding the severity of the 14 evaluation system problems were examined for five clerkships: internal medicine, surgery, pediatrics, psychiatry, and obstetrics and gynecology. In order to compare responses across the five specialties, a decreasing rank order of problem severity was determined for each specialty based upon calculations of average responses. These rank orders are found in Table 3. Differences appear across the specialties in the order of severity of each of the 14 problems. The most serious problem in the clinical evaluation of students in internal medicine was faculty members' unwillingness to record negative evaluations; in surgery, failure to act on negative evaluations; in pediatrics and in psychiatry, inadequate guidelines for handling problem students; and in obstetrics and gynecology, lack of information about the problems that students bring with them into the rotation.

Differences in the rank order across specialties were more pronounced for the 22 problems assessed by the clerkship coordinators. These rank orderings are displayed in Table 4. The most serious evaluation problem for coordinators in internal medicine was faculty members' unwillingness to record negative evaluations; in surgery and in obstetrics and gynecology, it was lack of an early-warning system regarding problem students; and in pediatrics and in psychiatry, the most serious problem was the insufficient definition of evaluation criteria.

PROBLEM STUDENTS

Clerkship coordinators, clinical faculty members, and residents at eight of the 10 pilot schools were asked to indicate the frequency of encountering each of 21 types of problem students. The responses of 891 persons who completed the instrument are displayed in Table 5. The type of problem student encountered most often was one who cannot focus on what is important, the disorganized student, the overeager student, and the student with a poor fund of knowledge.

Specialty-specific responses on the frequency of encountering problem students were examined for five clerkships: internal medicine, surgery, pediatrics, psychiatry, and obstetrics and gynecology. In or-

TABLE 6

Rank Order of the Frequency of Encountering 21 Types of Problem Students, Based on the Ratings of Frequency for Each Type by 891 Clerkship Coordinators, Clinical Faculty Members, and Residents at Eight Pilot Schools, by Specialty, 1984–85*

Type of Problem Student	All (n = 891)	Internal Medicine (n = 319)	Surgery (n = 96)	Pediatrics (n = 163)	Psychiatry (n = 93)	Obstetrics-Gynecology (n = 162)
Cannot focus on what is important	1	1	1	1	3	3
Has a poor fund of knowledge	2	3	2	3	4	5
Disorganized	3	2	3	2	8	4
Has poor integration skills	4	4	6	6	2	6
Excessively shy, nonassertive	5	5	4	5	5	2
Overeager	6	6	5	4	6	1
Bright but has poor interpersonal skills	7	7	7	7	1	8
Uninterested	8	10	8	8	8	9
Too casual and informal	9	8	9	9	12	11
Avoids work	10	11	12	11	9	12
Challenges everything	11	12	11	10	11	13
"Does not measure up" intellectually	12	9	10	12	13	14
"All thumbs"	13	14	13	13	20	10
Avoids patient contact	14	13	16	14	10	18
"Con artist"	15	16	14	15	18	15
Rude	16	15	15	17	14	17
Hostile	17	18	17	19	16	16
Cannot be trusted	18	17	18	18	19	7
Does not show up	19	20	19	16	17	19
Has a psychiatric problem	20	19	20	20	15	20
Has a substance abuse problem	21	21	21	21	21	21

* In the rank order, 1 = most frequently encountered and 21 = least often encountered. The rank order was based on the respondents' rating of each problem student on a 3-point scale.

der to compare responses across the five specialties, a decreasing rank order of the frequency of encounter was determined for each specialty based upon calculations of average responses. These rank orders are presented in Table 6. Many differences are evident across the specialties in the order of each of the 21 types of problem students. The most frequently encountered problem student in internal medicine, in surgery, and in pediatrics was the student who cannot focus on what is important; in psychiatry, it was the bright student with poor interpersonal skills; and in obstetrics and gynecology, it was the overeager student.

Respondents were also asked to indicate for each type of student whether they, as evaluators, found it difficult to identify and manage that type of problem student. The responses of 891 clerkship coordinators, clinical faculty members, and residents at eight of the 10 schools were examined by specialty. Table 7 presents the rank order of problem students with respect to difficulty in diagnosis and management in each of the five specialties. Differences across the five specialties indicate that each type of problem student poses different evaluation difficulties in each specialty.

EVALUATION FORMS

The clerkship coordinators, clinical faculty members, and residents were asked to assess the adequacy of the evaluation

TABLE 7

Rank Order of the Difficulty of Identifying and Managing 21 Types of Problem Students, Based on the Ratings of Difficulty of Each Type by 891 Clerkship Coordinators, Clinical Faculty Members, and Residents at Eight Pilot Schools, by Specialty, 1984–85*

Type of Problem Student	All (n = 891)	Internal Medicine (n = 319)	Surgery (n = 96)	Pediatrics (n = 163)	Psychiatry (n = 93)	Obstetrics-Gynecology (n = 162)
Has a psychiatric problem	1	2	1	1	2	1
Shy, nonassertive	2	1	2	2	1	2
"Con artist"	3	3	4	4	3	3
Has a substance-abuse problem	4	5	3	3	4	4
Bright but has poor interpersonal skills	5	4	5	5	6	5
Challenges everything	6	6	16	7	8	7
Has poor integration skills	7	7	6	6	9	12
Cannot be trusted	8	12	9	10	5	6
Hostile	9	10	12	11	7	9
Cannot focus on what is important	10	11	7	8	13	11
"Does not measure up" intellectually	11	8	14	12	11	10
Avoids patient contact	12	9	8	16	15	8
Uninterested	13	14	11	14	10	14
Too casual and informal	14	13	17	9	18	13
Overeager	15	16	10	13	12	17
"All thumbs"	16	15	18	17	17	15
Disorganized	17	18	15	15	21	16
Has a poor fund of knowledge	18	17	13	18	20	19
Avoids work	19	19	19	19	19	20
Does not show up	20	21	20	20	16	21
Rude	21	20	21	21	14	18

* In rank order, 1 = most difficult to identify and/or manage and 21 = least difficult to identify and/or manage. The rank order was based on the respondents' rating of each type of student on a 3-point scale.

forms they used on a scale of "serious problem," "problem," and "no problem." From a total of 993 respondents, more than one-third (37.2 percent) indicated that an adequate evaluation form was a problem or a serious problem in their respective departments.

Fifteen evaluation forms used to evaluate the clinical performance of third-year medical students in 38 departments at the 10 pilot schools were collected and their content analyzed. The specialties represented by these forms were internal medicine, surgery, pediatrics, psychiatry, obstetrics and gynecology, and family medicine. Using the report of the Working Group on Fundamental Skills from the AAMC study by the Project Panel on the General Professional Education of the Physician and College Preparation for Medicine (5), the staff for the Clinical Evaluation Program developed a schema of several aspects of clinical performance. This framework was used to group all of the items on each of the 15 forms into seven categories: (*a*) specific clinical skills, including history-taking and physical examination, oral and written communication, technical skills, and interpretation of laboratory test results; (*b*) inter-

TABLE 8

Number of 30 Departments at Nine Pilot Schools in Which Each of Seven Categories of Skills Was Included in the Department's Clinical Evaluation Forms and in Which 800 Clinical Faculty Members, Residents, and Clerkship Coordinators Expressed Dissatisfaction with Their Ability To Assess the Skills, 1984–85

Category	Departments		Range of Percentages of Respondents Expressing Dissatisfaction
	No. with Category on Form	No. with Respondents Expressing Dissatisfaction	
Clinical skills	30	25	5.3–44.4
Interpersonal skills	28	23	5.3–62.5
Clinical judgment and/or problem-solving	28	22	3.4–58.3
Knowledge	29	22	3.4–33.3
Physician-related characteristics	30	23	1.3–33.3
Person-related characteristics	22	18	3.5–58.3
Use of literature	10	10	10.3–62.5

personal skills, including relationships with patients, faculty members, staff, and peers, and interest in patients; (*c*) clinical judgment and problem-solving including clinical reasoning, use of resources, diagnostic formulation, and development of a treatment and/or management plan; (*d*) knowledge, including fund of knowledge and application of knowledge; (*e*) physician role characteristics such as responsibility, initiative, attendance, and dependability; (*f*) personal characteristics such as leadership potential, educational initiative, maturity, and understanding; and (*g*) use of the medical literature.

Clerkship coordinators, clinical faculty members, and residents at nine of the 10 schools were given a list of items taken directly from the particular forms used in evaluating third-year students in their departments and asked to indicate, for each item, whether or not they were certain of their ability to assess students on that item. Results from 800 respondents in 30 departments are displayed in Table 8.

The respondents were also asked whether some of the items were not important to evaluate. Sixty respondents (7.5 percent) indicated that this was the case for certain items on their department's form.

The responses suggest a significant degree of dissatisfaction on the part of coordinators, faculty members, and residents with the evaluation forms currently in use at the pilot schools. There was also discomfort with the evaluators' own ability to use effectively many items on these forms. The seven aspects of clinical performance developed by the authors provide a framework for the development of adequate and effective forms for the evaluation of third-year medical students.

Conclusion

From the examination of the data reported here, it is apparent that no school is exempt from evaluation system problems. The problems, however, vary from school to school; in fact, the configuration of a particular set of problems and the context of the environment in which they exist are unique to each school. Specific solutions to particular system shortcomings, therefore, must also differ and cannot be generally prescribed. However, im-

provement of communications, direct discussion of misperceptions and negative attitudes, and availability of materials, guidelines, and training programs help in the search of effective solutions.

It is hoped that the publication of these nationwide reference data and the availability of the self-assessment instruments through the AAMC Management Education Program Workshop Series (and directly from the AAMC) will encourage schools to undertake self-studies and to share their findings with others.

The comments by one participant (6) in the 1985 AAMC National Invitational Conference on the Clinical Education of Medical Students seem particularly relevant:

> Medical school faculty members have a highly developed sense of what constitutes a good physician. Evaluation systems must help them to feel comfortable in recording their observations about developing physicians just as they feel comfortable in recording their observations about their patients, knowing that they are observations, not necessarily facts. They need to learn to have confidence about their instincts and to recognize their dual roles as mentors and judges. Faculties should not be singled out as the only weak link in the evaluation system; the entire system is at fault and needs improvement. The leadership necessary to do this is in the offices of the deans and department chairs. It also resides in the senior faculty members of each school. Now is the time for these leaders to fulfill their responsibility to solve this important problem.

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Physician Characteristics and Training Emphasis Considered Desirable by Leaders of HMOs

M. Orry Jacobs and Peter D. Mott, M.D.

Abstract—Health maintenance organizations (HMOs) are growing rapidly and employing increasing numbers of physicians. It is important for medical educators to know what such organizations consider important physician traits and training experiences for their recruitment and retention of physicians. A survey of all HMOs in the United States in 1986, to which 44 percent responded, indicated that they want the curriculum of medical school and/or residency programs to have increased emphasis on cost-effective use of diagnostic and treatment services, utilization review and quality assurance, the role of primary care "gate-keeper," and financing of health services. The most important criteria in selection of physicians by HMOs were the physician's board eligibility, motivation, bedside manner, adaptability to a changing environment, the ability to work in a team, training being done in a U.S. medical school, and ability to relate to nonphysician staff members and the reputation of the physician's residency program.

Medical education in the United States is undergoing thorough reevaluation and change, and the restructuring of curricula reflects in part the restructuring taking place in health care delivery. One of the most significant events in this changing environment is the emergence of health maintenance organizations (HMOs), which offer prepaid health care to individuals. Already, more than one-fourth of the physicians not employed by the federal government are salaried employees, many of them in HMOs. Because there will undoubtedly be an increase in the number of physicians working for or contracting with HMOs, the authors conducted a survey to determine the training and characteristics that those organizations desire of their physicians. The results of that survey are reported here.

Mr. Jacobs is director of strategic planning, University of Rochester Medical Center; he also is assistant professor, Department of Health Services, and Dr. Mott is associate professor, Department of Preventive Medicine, both at the University of Rochester School of Medicine and Dentistry, Rochester, New York.

Background

American medical colleges and academic medical centers are studying and redesigning curricula at a pace not seen since the days following the Flexner report of 1910. Bok (1) called for basic changes in medical education and warned about an imposing list of obstacles to that change. Siu and colleagues (2) reviewed recent curricular changes reported throughout the literature and found many to be "short-term programs . . . not worth pursuing." They suggested, instead, a more radical restructuring of medical education.

In its landmark report, "Physicians for the Twenty-First Century," the Association of American Medical Colleges in 1984 (3) reviewed the reasons why considerably more needed to be done to adapt the general professional education of medical students to the changes in medical practice. The report considered college, medical school, and residency training years as a unit. It cited rapid advances in biomedical knowledge and technology. The report, however, was equally concerned with environmental factors, the understanding of the importance of life-style, the problems of poverty, and the increasing need for physicians to be able to coordinate a variety of community health services. Moreover, the study pointed to the need to train physicians to handle cost-containment measures and ethical dilemmas. Lastly, it pointed out that the educational establishment should remember that medical graduates increasingly are seeking employment with HMOs and other new forms of practice.

Certain preclinical and clinical subjects have been reported to need greater emphasis in the curriculum. After surveying the current status of the teaching of medical ethics, Culver and colleagues (4) recommended that all schools require basic instruction in several aspects of that subject. Sheps (5) called for further training in an epidemiological approach for all students to link health care to public and individual needs. For example, that author indicated that through this discipline the student will see the importance of gaining knowledge about chronic disease management and geriatrics.

Certain experiences have been advocated as being valuable in training physicians. Many authors have called for an increase in time spent in an ambulatory setting (1, 3, 5). Indeed, the inpatient experience is becoming increasingly atypical of the average medical practice, and some authors call for decreasing the trainee's time in the tertiary-care hospital setting in relation to ambulatory care exposure. Lipkin and colleagues (6) stressed the need to teach interviewing and related psychosocial skills. Kantor and Griner (7) surveyed graduates of a university-based medical residency program, and the graduates reported the need for more training in approaching psychosocial problems and assessing cost-benefit issues.

Whether an appreciation of cost saving through more selective use of diagnostic procedures is best taught as a topic per se (7, 8) or whether it can be expected as a logical outcome of sound clinical reasoning has been debated in the literature. Only 34 percent of U.S. medical schools in 1979 were teaching or planning to teach cost containment as a subject (9).

Other management skills have been described as important. Haggerty (10) stressed the organization of health services in a community, how to assess their strengths and weaknesses, and how to change them. Others called for experience working in health care teams (5, 11), including effective utilization of consultants (8), nurses, and mid-level practitioners (12).

Curricular changes can be expected to help improve the delivery of health services. For example, training primary care specialists to be able to take on the responsibilities of a "gatekeeper," coordinator, or case manager can theoretically improve the care of patients (8). In more organized systems of care, it is possible for the physician to plan and carry out the long-term care of patients and to provide the continuity and oversight that can allow more prevention, better diagnosis, and more efficient management and can avoid unnecessary procedures or over-

utilization of hospitals. It is such physician skills and curricular programs that hold the most promise for HMOs.

HMOs are growing rapidly and are now predicted to enroll 50 million subscribers by 1993 (13). Some experts expect that prepaid plans will dominate health care delivery during the next decade. Federal officials openly talk of their strategy to shift Medicare beneficiaries into prepaid plans (14). Indeed, some health care professionals in cities where large proportions of the population participate in HMOs, (such as Minneapolis, Minnesota, and Rochester, New York) already refer to "capitation," rather than fee-for-service, practice as the customary practice. Given the explosive growth in HMOs, it appears likely that HMOs will have an expanding pool of affiliating physicians, either as employees or as participants through contractual agreements.

HMOs have been recruiting physicians since the 1930s, but only recently have they become large-scale employers. In the past, the HMOs' only preferences regarding physicians reportedly were that the physicians be graduates of prestigious medical schools and board-certified in specialties (15).

To determine the physician characteristics HMOs deem important and those that most influence their hiring decisions, the authors conducted a national survey of HMO leaders.

Method

A survey instrument was designed by the authors after they interviewed HMO medical directors in Rochester, New York, to determine the topics and criteria that should be included in the questionnaire. Subsequently, these same individuals were asked to pretest the questionnaire.

A mailing list of HMOs in the United States was obtained from a national nonprofit research firm specializing in HMOs. The survey instrument and stamped, self-addressed envelopes were mailed in February 1986 to all 380 HMOs on the list, including those in the pretest. A total of 168 responses were received, a response rate of 44 percent. A cover letter asked that the survey be directed to the individual responsible for physician selection.

The data received were entered on a microcomputer for analyses. Chi-square tests were used to determine whether the responses varied significantly according to HMO characteristics, such as enrollment size, HMO type (staff, group, independent practice association, and network), and number of years in operation.

Results

The first question asked respondents to indicate the emphasis they thought should be given to 21 areas at some time during the medical education process. Potential responses for rating the areas were: much greater emphasis, somewhat greater emphasis, no change in emphasis, somewhat less emphasis, and much less emphasis. Table 1 presents the percentages of those responding to each area who felt the emphasis should be "much greater" or "somewhat greater." The curricular areas rated as needing much greater or somewhat greater emphasis by 90 percent or more of the respondents were: cost effective use of diagnostic and treatment services, utilization review and/or quality assurance, role of primary care gatekeeper, and financing of health care services. Occupational medicine, epidemiology, emergency medicine, and clinical experience in an inpatient setting had the lowest percentages (less than 45 percent) of respondents who favored increased emphasis.

TABLE 1

Percentages of 168 Leaders of Health Maintenance Organizations Who Felt That Each of 21 Areas of Training Should Receive Greater Emphasis in Medical Education, 1986*

Areas	Much Greater Emphasis	Somewhat Greater Emphasis	Combined
Cost-effective use of diagnostic and treatment services	75	22	97
Utilization review and/or quality assurance	62	34	96
Role of primary care gatekeeper	44	48	92
Financing of health services	46	44	90
Clinical experience in ambulatory setting	33	52	85
Group dynamics	29	54	83
Preventive medicine	35	48	83
Geriatrics	26	55	81
Nutrition	24	52	76
Behavioral sciences	27	47	74
Health education	28	46	74
Working with other health professionals	24	49	73
Working with nurse practitioners or physician assistants	25	47	72
Marketing	15	56	71
Office management	26	43	69
Medical ethics	21	42	63
Rehabilitation	13	46	59
Occupational medicine	6	38	44
Epidemiology	5	33	38
Emergency medicine	3	27	30
Clinical experience in inpatient setting	5	18	23

* Percentages were rounded to the nearest whole number. The number of responses to each item ranged from 148 to 159 because not all respondents rated all items. The possible responses were: much greater emphasis, somewhat greater emphasis, no change in emphasis, somewhat less emphasis, and much less emphasis.

An analysis was performed to determine whether HMO type, enrollment size, or number of years in operation resulted in a statistically different response. While there were some differences in responses by HMO characteristics, the responses for a majority of curricular areas were not statistically different at the 95 percent confidence level.

The second question asked respondents to rate the importance of 17 criteria in recruiting or employing physicians. Potential responses were: very important, somewhat important, not very important, and not important. Table 2 presents the percentages of those responding who rated each selection criterion as either very important or somewhat important. All of the respondents indicated that board certification and/or eligibility of the physician was very or somewhat important. Over 90 percent of the respondents indicated that the following criteria were very or somewhat important: the physician's motivation and bedside manner, the physician's adaptability to the

TABLE 2

Percentages of 168 Leaders of Health Maintenance Organizations Who Rated Each of 17 Criteria as Important in Recruiting and Hiring Physicians, 1986*

Criterian	Very Important	Somewhat Important	Combined
Board certification and/or eligibility	74	26	100
Motivation	72	25	97
Bedside manner	58	38	96
Adaptability to changing environment	62	33	95
Ability to work in a team	74	21	95
Reputation of residency program	46	48	94
Trained in U.S. medical school	49	44	93
Ability to relate to nonphysician staff members	63	29	92
Reputation of medical school	31	54	85
Experience in practice	16	59	75
Curriculum in residency program	21	52	73
Clinical experience in HMO setting	23	47	70
Salary requested	13	55	68
Geographic preference	20	44	64
Age	7	39	46
Balance of males and females on staff	5	41	46
Curriculum in medical school	11	34	45

* Percentages were rounded to the nearest whole number. The number of respondents rating a specific criterion ranged from 144 to 164 because not all respondents rated all items. The possible responses were: very important, somewhat important, not very important, and not important.

changing practice environment, the physician's ability to work in a team, the reputation of the physician's residency program, the physician's training being done in a U.S. medical school, and the physician's ability to relate to nonphysician staff members. Least important were the physician's age and medical school curriculum and the balance of males and females on the HMO's staff.

Discussion

In their responses to the survey described here, the HMO leaders indicated concern about shortcomings of medical education that were remarkably consistent with opinions found in the literature (1–3). Many of these concerns also appear to be held increasingly by government, insurers, and industry in the United States, and they center on how best to train physicians to provide both high-quality and cost-effective care.

For example, the two areas most frequently cited as needing much greater emphasis in medical education, namely the cost-effective use of diagnostic and treatment services and skills in utilization review and quality assurance, may reflect the rising pressures from government and industry to reduce the rate of increase in health care costs. Indeed, the presumed ability of HMOs to minimize hospital admissions, control lengths of stay, and limit the use of diagnostic and treatment services is the reason they have received such strong support from government and industry. Prepayment for health care services and particularly the role of the primary care physician as "gate-keeper"

offer potential solutions to the need to control use of health services and to seek the least expensive services appropriate to the patient's needs.

Other recommendations made by the respondents in the present study reflect similar concerns about the shortcomings of medical education. As hospital utilization declines, more and more diagnosis and treatment decisions are being made in ambulatory settings and at home; hence, the respondents expressed a need for clinical experience in ambulatory settings. Moreover, since health care is increasingly provided by teams of health professionals, there is an increased need for physicians to learn to work effectively on teams. Desire for increased emphasis on preventive medicine is probably related to the likelihood that it would reduce health care expenditures in the future, while increased emphasis on geriatrics probably reflects the rapid aging of the U.S. population.

On the other end of the scale, occupational medicine, epidemiology, emergency medicine, and inpatient training were seen as requiring less emphasis. Occupational medicine may be considered by HMOs as a specialty focused in employer-sponsored clinics or occupational health centers. HMO practice still revolves around the individual patient, and this may explain the lack of interest in epidemiology. The respondents may have considered emergency medicine to refer to true medical emergencies and not the urgent but nonemergency cases that account for a majority of visits to hospital emergency rooms. The interest in decreasing training time in inpatient settings is a natural corollary to the perceived need to emphasize further ambulatory experiences.

The importance of board certification or eligibility in selecting physicians was hardly surprising; however, the HMO leaders gave nearly equal weight to the physician's personal attributes and interpersonal skills. The physician's ability to work in a team and relate to nonphysician staff members were also rated highly. Motivation and adaptability to a changing environment are important in light of the cost-conscious and rapidly changing health care environment of the late 1980s. The importance of bedside manner to the HMO leaders may reflect the role of physician-patient interaction in generating patient satisfaction and, hence, HMO enrollments.

The reputation of the physician's residency programs and their being trained in U.S. medical schools were both rated as more important in hiring physicians than either the reputation of medical schools or the curriculum of residency programs. Least important in hiring was the medical school curriculum. While curricula were not rated as crucial in HMO hiring, the HMO leaders wanted to see far-reaching changes in both medical school and residency curricula to help produce physicians they consider better suited to practice in HMOs.

HMOs will select an increasing number of physicians from an increasing glut of graduates. Academic medical centers should seriously consider expanding their communication with HMO leaders so that they can take into account HMO needs and desires when redesigning their curricula and clinical experiences. In so doing, they are likely to make their graduates more competitive for HMO positions.

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the practices of the directors of residency programs at their affiliated institutions and make efforts to ensure that their application requirements are fair and educationally sound. The various organizations of residency program directors should exert pressure on their members to participate in the NRMP, to abide by its rules, and to eliminate the practice of requiring applicants to take on-site electives. The Association of American Medical Colleges and the American Medical Association could take the lead in establishing guidelines for acceptable practices and implementing them through their involvement in the Liaison Committee on Medical Education and the Accreditation Council for Graduate Medical Education.

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Survey of Departments of Obstetrics and Gynecology In U.S. and Canadian Medical Schools, 1965 to 1985

Charles R. B. Beckmann, M.D., Barbara M. Barzansky, Ph.D., Robert D. Eden, M.D., Frank W. Ling, M.D., William N. Spellacy, M.D., and Benny Waxman, M.D.

A questionnaire was sent to all chairmen of medical school departments of obstetrics and gynecology in the United States and Canada under the auspices of the Undergraduate Education Committee of the Association of Professors of Gynecology and Obstetrics (APGO). It was designed to seek information about undergraduate medical education in obstetrics and gynecology and about the departments in which this education occurs. In this paper the authors present information gained from the questionnaire and compare it with information gained through similar surveys in 1965 and 1975 (1, 2).

This report was adapted from a presentation at the Annual Meeting of the Association of Professors of Gynecology and Obstetrics, New Orleans, Louisiana, February 1986.

Dr. Beckmann is associate professor and Dr. Spellacy professor and head, Department of Obstetrics and Gynecology, University of Illinois College of Medicine at Chicago; Dr. Barzansky is associate professor of health professions education, Center for Educational Development, University of Illinois at Chicago Health Sciences Center; Dr. Ling is associate professor and director, Division of Gynecology, and assistant dean for student affairs, University of Tennessee, Memphis College of Medicine, Dr. Eden is assistant professor, Department of Obstetrics and Gynecology, Rush Medical College of Rush University, Chicago; Dr. Waxman is professor and vice-chairman, Department of Obstetrics and Gynecology, George Washington University School of Medicine and Health Services, Washington, D.C.

Methods

In January 1985 the questionnaire was sent to the 144 chairmen of the departments of obstetrics and gynecology listed in the APGO registry. The seven-page questionnaire contained 11 groups of questions (including completion, scaled, and essay questions) about curriculum design and development, evaluation in undergraduate education in obstetrics and gynecology, and demographic information about the departments and the chairmen who led them. After a second mailing, a total of 115 (79.9 percent) responses were available for analysis. A portion of the information obtained was used in the preparation of this article. These data were analyzed using standard statistical methods. Where appropriate, the information was compared with similar published information for 1965 and 1975 (1, 2).

Results

Between 1965 and 1975 there was a trend toward increased numbers of faculty members in departments of obstetrics and gynecology (2), but in the following decade there was relative stability in faculty size. In 1985 there was an average of 12.8 full-time faculty members with M.D. degrees per department (S.D. = 9.8, range = 0–80) and 2.5 full-time faculty members with Ph.D. degrees (S.D. = 2.8, range = 0–14). In comparison, the average number of full-time M.D. faculty members was 11.3 in 1975 and 6.4 in 1965, as indicated in Table 1. Part-time clinical faculty members comprised a significant part of the teaching faculty of many departments, with an average of 19.2 part-time M.D. faculty members per department in 1985 (S.D. = 31.6, range = 0–99). There was an overall average of 5.4 tenured faculty members per department in 1985 (S.D. = 4.6, range = 0–23). The mean number of residents taught by faculty members per department was reported as 19.2 in 1985 (range = 0–48), 18.7 in 1975, and 13.8 in 1965.

This trend toward stabilization in size and staffing was also seen in the obstetrics and gynecology clerkships that these faculty members taught. In 1985 the average number of students per clerkship was 16.7 (S.D. = 9.5, range = 0–50) compared with 17.8 students per clerkship in 1975 and 15.9 students per clerkship in 1965. Two schools were developing required clerkships in obstetrics and gynecology in 1985 and thus had no students in a required clerkship at the time of the questionnaire. There were 6 to 15 students per clerkship in 38.3 percent of the responding departments in 1985 compared with 45.1 percent of responding departments in 1975 and 61.6 percent in 1965. In contrast, there were 21 to 25 students in 12.1 percent of the 1985 sample compared with 15.2 percent of the 1975 sample and 5 percent of the 1965 sample. Large clerkships with more than 30 students per clerkship remained uncommon, being noted in 5.2 percent of the 1985 sample, 7.7 percent of the 1975 sample, and 3.3 percent of the 1965 sample. Clerkships averaged 6.9 weeks in length in 1985 (S.D. = 1.4, range = 4–12). This average clerkship length had not changed in the decade since the previous study. Of the respondents, 104 departments (90.4 percent) reported clerkships in the third year of medical school. The response of one department about clerkship format was not usable. Of the remainder, nine clerkships were held in the fourth year, and one was held in the second year. Combined clerkship formats that used second-, third-, and/or fourth-year components were reported by 21 departments.

The chairmen of the departments studied in 1985 averaged 53 years of age (S.D. = 6.7 years, range = 33–60]. Thirty-two of the 110 responding chairmen who gave their specialty were specialists in maternal-fetal medicine (29 percent), 24 were in gynecologic oncology (22 percent), 16 were in gynecologic endocrinology (15 percent), and 38 were in general ob-

TABLE 1

Numbers and Percentages of Medical School Departments of Obstetrics and Gynecology with Different Numbers of Full-Time M.D. Faculty Members in 1965, 1975, and 1985*

No. of Faculty Members	1965		1975		1985	
	No.	Percent	No.	Percent	No.	Percent
0–5	30	49.2	20	19.2	19	16.5
6–10	21	34.4	36	34.6	36	31.3
11–15	8	13.1	26	25.0	27	23.5
16–20	2	3.3	8	7.7	17	14.8
21–25	0	0	11	10.6	9	7.8
26–30	0	0	3	2.9	4	3.5
>30	—	—	—	—	3	2.6

* The 1965 and 1975 data are from Spellacy and colleagues (2).

stetrics and gynecology (34 percent). There was no significant difference in age based on subspecialty. Seven chairmen had both M.D. and Ph.D. degrees, one had an M.D. and D.V.M. degree, and the rest had M.D. degrees. The respondents had been chairmen an average of 7.9 years (S.D. = 6.7 years, range = <1–29 years). The chairmen were diverse in the number of journal articles they had published. A mean of 60 published articles was reported by the 115 chairmen who responded to this question (S.D. = 68, range = 0–400). Seventeen chairmen reported no published journal articles, while six reported more than 150 articles each. Membership in the Association of Professors of Gynecology and Obstetrics was common, with 108 of the 115 respondents (93.9 percent) reporting membership.

Discussion

During the decade between 1965 and 1975, medical schools responded to a demand for increasing numbers of physicians by expanding their faculties and facilities. In the ensuing decade, 1975 to 1985, the number of medical students no longer increased, and there was an increased emphasis on quality of medical education in a broad sense (3, 4). In obstetrics and gynecology, the development and revision of national undergraduate objectives is an example of the efforts to emphasize quality of medical education. In the 1975–1985 decade there was a stabilization in the numbers of students per clerkship and length of clerkships in obstetrics and gynecology and a tendency to develop departments with larger numbers of full-time and part-time clinical and basic science faculty members.

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Residency Directors' Perceptions of Gender-Related Differences In the Performance of Psychiatric Residents

Howard B. Roback, Ph.D., Miles K. Crowder, M.D., and Judith McNeeley, Ph.D.

Although psychiatry traditionally has been an attractive field for women, relatively few female psychiatrists hold prominent academic, research, or policy-making positions (1). Female psychiatrists not only have lamented the lack of female role models when they were trainees (2) but also have expressed concern about specific deficits in their education, such as lack of training in coping with sexual or aggressive responses by patients. In addition, female psychiatrists contend that supervisors avoid helping them explore their own conscious and unconscious reactions—for example, sexual—to patients (3). Female residents in general also believe that they are asked

Dr. Roback is professor of psychiatry (psychology), Vanderbilt University School of Medicine, Nashville, Tennessee; Dr. Crowder is associate professor of psychiatry at the medical school and coordinator of psychiatry residency training, Vanderbilt University Hospital; and Dr. McNeeley is clinical instructor of pediatrics, University of Wisconsin Medical School, Madison.